

INTERNATIONAL METEOROLOGY.

Storms at Sea—September 2nd and 3rd, 200 miles west of Cape Horn, NW. hurricane, lasting 8 hours, then shifting to SE., and lasting 36 hours; 11th, off Cape Horn, fearful gale from WSW.; 28th, lat. 17° 15' N., long. 85° 25' W., N. hurricane and very high sea from E. October 13th, off Cape of Good Hope, W. gale, lasting 30 hours; lat. 49° 40' N., long. 15° 30' W., terrific SW. to NW. gale; 14th, 39° 30' N., 53° 20' W., SE. to NW. hurricane, lasting 12 hours; 49° 39' N., 11° 7' W., S. to NW. hurricane, lasting 12 hours, barometer 28.70; 16th, 43° 36' N., 45° 8' W., W. hurricane, barometer 29.45; 44° 30' N., 54° W., NNW. and W. hurricane, lasting 3 days; 17th, 39° 14' N., 56° 8' W., ESE. hurricane, lasting 4 hours; 42° N., 52° W., gale; 45° 30' N., 38° 22' W., WSW. hurricane, barometer 29.47; 40° N., 54° W., NW. hurricane; 41° 50' N., 49° W., SW. hurricane, continuing during the 18th and 19th, barometer at 4 p. m., 18th, 28.4; 18th, 48° 30' N., 42° 40' W., S. to NW. hurricane, lasting 19 hours; 19th, St. Lawrence Bay, Arctic Ocean, heavy gale; 47° N., 29° W., very heavy N. by E. gale; 21st, 45° N., 179° 30' W., W. gale, barometer 29.15; 29th, 47° 40' N., 36° W., very severe SW. gales. Nov. 10th, coast of Honduras, hurricane; 11th, 55° N., 15° W., hurricane; 12th, 41° 48' N., 53° W., strong NNE. gale, very heavy sea; 15th, 50° 40' N., 13° 20' W., heavy SW. to WNW. gale, very heavy squalls and high seas; 16th, Orkney Islands, S. to W., hurricane; 17th, North Uist, Scotland, NW. gale; 18th, 50° N., 18° W., strong gale; 35° 37' N., 60° 40' W., very heavy sea, sweeping decks; 19th, Crooked Island Passage, Bahama Islands, heavy N. gale; about 40° N. 50° W., strong hurricane; 21st, 48° 46' N., 36° 17' W. heavy NW. to NNE. gale and sea, lasting 24 hours; 25th, 36° N., 74° 50' W., fearful wind, with heavy squalls; 8° N., 44° W., very heavy thunder-storm from E. Dec. 2nd, 30° N., 77° W., and 48° 30' N., 39° 54' W., NW. gales; 48° 11' N., 45° 12' W., SW. strong gales; 3rd, 19° 03' N., 105° 18' W., heavy squalls, rain, thunder and lightning; 35° 5' N., 58° 15' W., strong NE. gale; 4th, 24° 30' N., 80° 26' W., heavy SE. gale; 5th, 33° N., 73° 30' W., heavy S. gale, lasting 24 hours, followed by violent NW. gales; 28° 42' N., 72° 56' W., heavy SSE. gale, lasting until the 7th, barometer 29.80; 6th, 48° 08' N., 36° 44' W., and 51° 20' N., 13° 07' W., NW., gales; 32° 35' N., 76° 42' W., and 37° N., 69° W., heavy SE., and SSE., gales; 7th, 43° 03' N., 60° 02' W., and 46° 45' N., 43° 16' W., strong westerly gales; 47° 17' N., 42° 18' W., SW., storm; 51° 07' N., 19° 42' W., strong NW., gale; 8th, 49° 37' N., 47° 42' W., heavy west gale; 46° 42' N., 46° 28' W., and 50° 51' N., 26° 36' W., strong NW., gales; 9th, 48° 08' N., 33° 51' W., very heavy NW., squalls and tremendous sea; 10th, 51° 18' N., 18° 34' W., strong WSW. gale; 48° 10' N., 39° 12' W., heavy NW. to SW. hurricane-like gale; 49° 24' N., 15° 42' W., NW. storm. 11th, 50° 48' N., 20° 10' W. and 49° 23' N., 22° 39' W., strong W. and NW. gales; 47° 03' N., 44° 58' W., N. gale; 41° 30' N., 65° 32' W., NW. gale; 50° 44' N. 19° 35' W., strong SW. gale. 12th, 50° 12' N., 24° 46' W., strong NW. gale; 32° 50' N., 71° W., heavy SW. gale, lasting 12 hours. 13th, 49° 33' N. 28° 32' W., strong NW. to S. gale. 14th, 48° 56' N., 32° 35' W., strong SW. to W., gale; 45° 59' N., 53° 15' W., SW., hurricane lasting 5 hours; 41° 46' N., 62° 25' W., strong NW. gale. 15th, 40° 32' N., 68° W., N. gale. 18th, 49° 28' N., 34° 45' W., and 47° 40' N., 44° 18' W., heavy west gales. 22nd, 40° 46' N., 63° 23' W., NW. gale with hail and snow squalls.

Earthquake Shocks—were felt October 9th, in Peru; October 12th, Isthmus of Panama; November 18th, Bermuda Islands, at 5 a. m.

TEMPERATURE OF THE AIR.

The isothermal lines and figures upon chart No. II illustrate the general distribution of the temperature of the air for the present month. A reference to the table upon the same chart will show that the average is above that for many years in all the districts, and decidedly so from the Missouri valley to the Lakes, Ohio valley and Tennessee, being 20° above the average in Minnesota. Along the Pacific coast and at the Rocky Mountain stations it has been only slightly above the average. Under the heads of Ice, Navigation and Miscellaneous Phenomena will be seen the effect of these high averages.

Maximum and minimum temperatures, respectively, for the month are—in Maine, at Cornish, 1°, 48°; Surrey, 8°, 55°. New Hampshire, Mt. Washington, —13°, 39°; Auburn, 7°, 56°. Vermont, Woodstock, —2°, 51°; West Charlotte, 13°, 55°. Massachusetts, Boston, 4°, 59°; Rowe, 10°, 46°. Rhode Island, Chepachet, 12°, 60°; Newport, 19°, 57°. Connecticut, Colebrook, 7°, 53°; New Haven, 15°, 60°. New York, Palermo, —4°, 49°; Rochester, 16°, 58°; New York City, 22°, 61°. New Jersey, Vineland, 19°, 61°; Atlantic City, 18°, 64°; Salem, 22°, 70°. Pennsylvania, Franklin, 14°, 54°; New Castle, 27°, 68°; Philadelphia, 22°, 63°. Delaware, Milford, 19°, 66°; Dover, 21°, 64°. Maryland, Woodstock, 15°, 63°; New Market, 20°, 68°. District of Columbia, Washington, 21°, 66°. Virginia, Snowville, 12°, 64°; Wytheville, 13°, 73°; Capeville, 29°, 65°. West Virginia, Helvetia, 13°, 64°. North Carolina, Franklin, 10°, 67°; Weldon, 21°, 77°; Wilmington, 25°, 73°. South Carolina, Spartanburg, 18°, 67°; Aiken, 20°, 70°. Georgia, Atlanta, 10°, 73°; Forsyth, 23°, 74°; Tybee Island, 31°, 72°. Florida, Fort Barrancas, 18°, 72°; Houston, 22°, 77°; Key West, 54°, 81°. Alabama, Green Spring, 15°, 70°; Mobile, 26°, 73°. Mississippi, Brookhaven, 20°, 72°; Vicksburg, 23°, 73°. Louisiana, Shreveport, 22°, 74°; Baton Rouge Barracks, 28°, 78°. Texas, Mason, 14°, 69°; Denison, 23°, 68°; Indianola, 33°, 77°. Indian Territory, Fort Gibson,

14°, 69°; Fort Sill, 20°, 72°. Arkansas, Mt. Ida, 10°, 68°. Tennessee, Austin, 14°, 70°; Spring Garden, 16°, 72°. Kentucky, Danville, 12°, 63°; Louisville, 26°, 67°. Ohio, Westerville, 12°, 66°; Toledo, 24°, 59°; Jacksonburg, 27°, 72°. Indiana, St. Mary's Home, 12°, 72°; St. Meinrad, 17°, 74°. Michigan, Escanaba, 10°, 45°; Alpena, 12°, 50°; Grand Haven, 25°, 61°. Wisconsin, Neillsville, —4°, 55°; Beloit, 13°, 64°. Illinois, Elmira, 10°, 62°; Chicago, 23°, 66°; Martinsville, 26°, 75°. Missouri, Corning, 3°, 66°; St. Louis, 21°, 69°. Iowa, Vail, —11°, 60°; Keokuk, 21°, 65°. Minnesota, Breckenridge, —10°, 49°; St. Paul, 10°, 56°. Dakota, Fort Pembina, —4°, 49°; Bismarck, 2°, 56°; Yankton, —1°, 52°. Nebraska, Sydney Barracks, —17°, 69°; Emerson, 6°, 64°. Kansas, Fort Hays, 4°, 62°; Leavenworth, 13°, 67°; Stanley, 20°, 76°. New Mexico, Fort Union, —6°, 57°; Santa Fe, 2°, 52°. Colorado, Pike's Peak, —26°, 30°; Fort Lyon, —10°, 63°; Colorado Springs, —2°, 69°. Wyoming Territory, Fort Sanders, —38°, 60°; Cheyenne, —10°, 64°. Montana, Idaho, Oregon, Washington Territory and Arizona reports missing. Utah, Salt Lake City, 8°, 51°. Nevada, Winnemucca, —1°, 57°. California, Fresno, 28°, 69°; Visalia, 31°, 68°; Red Bluff, 32°, 66°; Alcatraz Island, 40°, 69°; Salinas City, 33°, 69°.

Ranges in Temperature.—The *monthly* ranges will appear from an inspection of the minimum and maximum temperatures just given. The smallest ranges are found at the stations along the immediate coasts and lakes; the largest, in the interior, especially from Colorado and Wyoming to western Minnesota. *Daily.*—In New England, they vary from 19°, least, at Wood's Holl to 31°, greatest, on Mt. Washington; Middle Atlantic States, from 19° at Sandy Hook to 32° at Lynchburg. South Atlantic States, from 22° at Charleston to 37° at Augusta. East Gulf States, from 27° at Mobile to 33° at St. Marks. West Gulf States, from 17° at Galveston to 38° at Jacksboro, Texas. Ohio valley and Tennessee, from 24° at Memphis and Louisville to 32° at Nashville. Lower Lake region, from 21° at Buffalo to 26° at Cleveland. Upper Lake region, from 17° at Escanaba to 25° at Duluth. Upper Mississippi valley, from 21° at St. Louis to 27° at Dubuque. Breckenridge, 31°. Lower Missouri valley, from 25° at Leavenworth to 35° at Yankton. Indian Territory and plains of Kansas and Nebraska, from 31° at Fort Sill to 44° at North Platte. Rocky Mountain stations, from 31° at Santa Fe to 41° at Denver. California, from 13° at San Francisco to 33° at Visalia.

Frost in Ground.—The following reports show the conditions generally: New England—Cambridge and Westboro, Mass., ground generally free from frost. Lake region—Embarass, Wis., frost out of ground at end of month; Rocky Run, Wis., plowing through month. Middle Atlantic States—Sandy Springs, Md., plowing every day, excepting 1st; Cazenovia, N. Y., farmers plowing through the month; Palermo, N. Y., farmers plowing 28th; Wappinger's Falls and Farmingdale, N. Y., farmers plowing and harrowing; Hector, N. Y., farmers plowing through month; Carlisle, Pa., farmers plowing through month. The Northwest—Vail, Iowa, plowing 18th to 31st; Monticello, Iowa, plowing 30th; Booneboro, Iowa, plowing throughout month; Minneapolis, plowing 21st to 29th; Clear Creek, Neb., plowing 18th to 30th; Pembina, plowing during month.

Ice.—1st, ice reported as having formed at Vicksburg, Galveston, Mobile, Tybee Island and Quitman, Ga., and New London; river frozen over at Toledo; sufficiently strong to bear teams at Bismarck. 2nd, formed at Quitman, Ga.; Mobile, $\frac{1}{2}$ in.; Houston, Fla., $\frac{1}{2}$ in.; Point Pleasant, La., till 3rd; Mesilla, Tex.; Baxter Springs, Kan., 2 $\frac{1}{2}$ in.; Independence, Kan., till 9th; Standish, Me., 3rd, formed at Galveston; Rochester, canal frozen over; Wappinger's Falls, N. Y., 1 $\frac{1}{2}$ in.; Flushing, N. Y., 2 in. 6th, Austin, Tex., formed till 8th; Point Pleasant, La., till 11th. 8th, Wappinger's Falls, N. Y., lake open. 9th, formed at Wilmington, N. C. 10th, formed at West Waterville, Me.; at Brookhaven, Miss., $\frac{1}{2}$ in. 20th, Auburn, N. H., lake closed. 23rd, formed at Sandy Hook. 24th, Cazenovia, N. Y., lake frozen over. 25th, at Pembina, ice in river honey-combed by thaw. 26th, formed at Sandy Hook; Visalia, Cal., $\frac{1}{4}$ th in. 27th, Standish, Me. 29th, Salem, N. J.; Wappinger's Falls, lake frozen over. 30th, Independence, Kan.; near Melissa, and at Austin, Tex. 31st, Wappinger's Falls, 2 to 3 inches thick; West Charlotte, Vt., no ice on lake; Embarass, Wis., ice disappeared; Alpena Bay and river, free from ice.

PRECIPITATION.

In General.—The general distribution of rain and melted snow for the month is shown on chart No. III. The table in the lower left-hand corner gives the average precipitation in the various districts, for December, for several years, and for the present month. From the Missouri valley to the Upper Lakes and in the South Atlantic and East Gulf States the rainfall has been greater than the average for December; in the remaining districts it has been less.

Special Heavy Rains.—3rd, Clarksville, Tex., 2.75 inches; Galveston, 2.19 in.; Fort Barrancas, Fla., (3rd and 4th,) 5.36 in. 4th, Quitman, Ga., (4th and 5th,) 4.70 in.; Point Pleasant, La., 1.80 in.; St. Mark's, (4th and 5th,) 4.29 in. 5th, Jacksonville, Fla., 1.28 in.; St. Mary's, Ga., (5th and 6th,) 2.00 in.; Cape Lookout, N. C., 1.62 in.; Helvetia, W. Va., 1.25 in.; Cape Hatteras, (5th and 6th,) 3.58 in. 6th, Mt. Washington, N. H., (5th and 6th,) 3.87 in. 7th, Lawrence, Mass., 1.70 in. 9th and 10th, Eagle Pass, Tex., 2.43 in. 12th and 13th, San Antonio, Tex., 1.72 in. 17th and 18th, Fort Sill, Ind. Ter., 3.79 in.; Los Angeles, Cal., 2.21 in. 19th Cape Hatteras, 4.17 in. 20th, San Antonio, Tex., (19th and 20th,) 2.58 in.; New Ulm